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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,779	12/08/2003	Kia Silverbrook	MTB14US	2363

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SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, NSW 2041
AUSTRALIA

EXAMINER	
UHLENHAKE, JASON S	
ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/728,779	SILVERBROOK, KIA	
	Examiner	Art Unit	
	Jason Uhlenhake	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-54 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5-19, 23-38, and 42-54 of copending Application No. 10/773,189 in view of Silverbrook (U.S. Pat. 5,796,416), Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333).

Silverbrook in copending Application No. 10/773,189 discloses all of the claimed limitations except for the following:

- ***regarding claim 1, 19, 38,*** drive circuits corresponding to each of the nozzles respectively for controlling the operation of the heater

- the heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to the nozzle to replace the ejected drop, is substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop

- ***regarding claims 2-4, 20-22, 39-41,*** wherein the nozzle density is greater than 10,000, 20,000, or 40,000 nozzles/cm^2.

- ***regarding claim 43***: method wherein the bubble forming liquid is fed to the at least one heater element so that it substantially surrounds the heater element

Silverbrook ('416) discloses:

- ***regarding claim 1, 19, 38***, drive circuits corresponding to each of the nozzles respectively for controlling the operation of the heater (Column 9, Lines 34 – 40), for the purpose of controlling the nozzle ejections.

- ***regarding claims 2-4, 20-22, 39-41,*** wherein the nozzle density is greater than 10,000, 20,000, or 40,000 nozzles/cm^2 (Figure 8; Column 5, Lines 39 – 41), for the purpose of improving the quality of printing.

- ***regarding claim 43***: method wherein the bubble forming liquid is fed to the at least one heater element so that it substantially surrounds the heater element (Column 3, Lines 30 – 40), for the purpose of ejecting ink.

Silverbrook ('836) discloses:

- ***regarding claims 1, 19, 38,*** a heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to

the nozzle to replace the ejected drop (Column 4, Lines 59 – 65), for the purpose of self – cooling the printhead

Silverbrook ('333) discloses:

- ***regarding claims 1, 19, 38,*** energy substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop (Column 11, Lines 48 – 52), for the purpose of self – cooling the printhead.

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of drive circuits corresponding to each of the nozzles respectively for controlling the operation of the heater; the nozzle density is greater than 10,000, 20,000, or 40,000 nozzles/cm^2; method wherein the bubble forming liquid is fed to the at least one heater element so that it substantially surrounds the heater element; the heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to the nozzle to replace the ejected drop, is substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop as taught by Silverbrook ('416) into the device of Silverbrook ('189). The motivation for doing so would have been to control the nozzle ejections, eject ink from nozzles, self – cooling the printhead , and to improve the quality of printing.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 6, 8 – 10, 15, 19 – 25, 27 – 29, 34, 38 – 42, 44 – 46, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) in view of Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333).

Silverbrook ('416) discloses:

- ***regarding claims 1, 19, 38,*** a plurality of nozzles for supply with an ejectable liquid (Column 2, Lines 35-40, Figures 7-10)
- a heater corresponding to each of the nozzles respectively, the heater having at least one heater element configured for thermal contact with a bubble forming liquid (Column 3, Lines 30 – 41)
- drive circuits corresponding to each of the nozzles respectively for controlling the operation of the heater (Column 9, Lines 34 – 40)
- ***regarding claims 2 - 4, 20 – 22, 39 – 41,*** the nozzle density is greater than 10,000, 20,000 and 40,000 nozzles per square centimeter (Column 5, Lines 39-41, Figure 8)

- ***regarding claims 5, 24, 42***: wherein the bubble forming liquid and the ejectable liquid are of a common body of liquid (Column 5, Lines 58 – 65)

- ***regarding claims 6, 25***: configured to print on a page and to be a page-width printhead (Column 22, Lines 51 – 67)

- ***regarding claims 8, 27, 44:*** each heater element is configured such that an actuation energy of less than 500 nanojoules (nJ) is required to be applied to that heater element to heat that heater element sufficiently to form a said bubble in the bubble forming liquid causing the ejection of said drop (Column 11, Lines 11 – 20)

- ***regarding claims 10, 29, 46:*** printhead comprising a substrate having a substrate surface, wherein the area density of the nozzles relative to the substrate surface exceeds 10,000 nozzles per square cm of substrate surface (Column 2 Lines 35-40, Column 6 Lines 30-35)

- ***regarding claims 15, 34, 51***: printhead comprising a plurality of nozzle chambers each corresponding to a respective nozzle, and a plurality of said heater elements being disposed within each chamber, the heater elements within each chamber formed on different respective layers to one another (Column 9, Lines 34 – 40, Figure 1b)

- ***regarding claim 23***: system configured to support the bubble forming liquid in thermal contact with each heater element, and to support the ejectable liquid adjacent each nozzle (Column 3, Lines 30 – 40)

- ***regarding claim 43***: method wherein the bubble forming liquid is fed to the at least one heater element so that it substantially surrounds the heater element (Column 3, Lines 30 – 40)

Silverbrook ('416) does not discloses expressly the following:

- ***regarding claims 1, 19, 38,*** heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of the ejectable liquid from the nozzle; wherein during use
- the heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to the nozzle to replace the ejected drop, is substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop
- ***regarding claim 9, 28, 45***: configured to receive a supply of the ejectable liquid at an ambient temperature, where each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point

Silverbrook ('836) discloses:

- ***regarding claims 1, 19, 38,*** heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of the ejectable liquid from the nozzle; wherein during use (Column 14, Lines 11 – 19), for the purpose of ejecting the liquid/ink from the nozzles.

- the heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to the nozzle to replace the ejected drop (Column 4, Lines 59 – 65), for the purpose of self – cooling the printhead

- ***regarding claim 9, 28, 45***: configured to receive a supply of the ejectable liquid at an ambient temperature, where each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point (Column 4, Lines 59 – 65), for the purpose of self-cooling the printhead.

Silverbrook ('333) discloses:

- ***regarding claims 1, 19, 38,*** energy substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop (Column 11, Lines 48 – 52), for the purpose of self–cooling the printhead.

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of the ejectable liquid from the nozzle; wherein during use; a heat energy difference between an ejected drop of the ejectable liquid and an equivalent volume of the ejectable liquid supplied to the nozzle to replace the ejected drop, is substantially equal to the electrical energy required by the heater and the drive circuitry to eject the drop; configured to receive a supply of the ejectable liquid at an

ambient temperature, where each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point as taught by Silverbrook ('836) and Silverbrook ('333) into the device of Silverbrook ('416). The motivation for doing so would have been to self – cool the printhead.

Claims 7 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Tsun Pan (U.S. Pat. 4,894,664).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 7, 26***, wherein each heater element is in the form of a cantilever beam

Tsun Pan discloses the following:

- ***regarding claims 7, 26,*** wherein each heater element (15) is in the form of a cantilever beam (13) (Figure 9 –10, Column 4 Lines 17 – 20)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of a heater element in the form of a cantilever beam as taught by Tsun Pan into the device of Silverbrook ('416) as modified

by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to avoid direct contact with solid material by using the cantilever beam to improve flow of heat to the ink from the heat elements.

Claims 11, 30, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Sekiya (U.S. Pub. 2002/0071001).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 11, 30, 47***, wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that heater element

Sekiya discloses the following:

- **regarding claims 11, 30, 47,** wherein each heater element (9) has two opposite sides and is configured such that a said gas bubble formed by that heater element (9) is formed at both of said sides of that heater element (9) (Figure 14b, Paragraph 0039)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that heater element as taught by Sekiya into

the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to heat the ink across all surfaces of the heating element rapidly, so that the ink nearby the heating element is vaporized instantaneously to give a boiling bubble.

Claims 12, 31, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 12, 31, 48,*** wherein the bubble which each element is configured to form is collapsible and has a point of collapse, wherein each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.

Domoto et al discloses the following:

- ***regarding claims 12, 31, 48,*** wherein the bubble which each element is configured to form is collapsible and has a point of collapse, wherein each heater element (44) is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element (44). (Column 6 Lines 1- 10, 23 – 30)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of wherein the bubble which each

element is configured to form is collapsible and has a point of collapse, wherein each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element as taught by Domoto et al into the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to reduce cavitational force that erodes the heating element.

Claims 13, 32, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Chiou et al (U.S. Pat. 3,958,255).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 13,32, 50,*** comprising a structure that is formed by a chemical vapor deposition (CVD), the nozzles being incorporated on the structure.

Chiou et al discloses the following:

- ***regarding claims 13, 32, 50,*** comprising a structure that is formed by a chemical vapor depostition (CVD), the nozzles being incorporated on the structure (Column 4, Lines 45 – 58).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of a structure that is formed by a chemical vapor deposition (CVD), the nozzles being incorporated on the structure as

taught by Chiou et al into the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation is that chemical vapor deposition is well known in the art and is used to grow layers of advanced materials on the surface of a substrate.

Claims 14, 33, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Mizutani (JP 07101058).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 14, 33, 49,*** comprising a structure which is less than 10 microns thick, the nozzles being incorporated on the structure

Mizutani discloses the following:

- ***regarding claims 14, 33, 49,*** comprising a structure which is less than 10 microns thick, the nozzles being incorporated on the structure (Basic-Abstract)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of comprising a structure which is less than 10 microns thick, the nozzles being incorporated on the structure as taught by Mizutani into the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to help provide stable printing.

Claims 16, 35, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Scheu (U.S. Pat. 4,513,298)

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 16, 35, 52,*** wherein each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

Scheu discloses the following:

- ***regarding claims 16, 35, 52,*** wherein each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element (phosphorus-diffused silicon) having an atomic number below 50. (Abstract)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50 as taught by Scheu into the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to be able to heat the heater element with less energy since it is made of a material with a lower mass.

Claims 17, 36, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Cornell et al (U.S. Pat. 6,637,866).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 17, 36, 53,*** each heater element includes solid material and is configured for a mass of less than 10 nanograms of the solid material of that heater element to be heated to a temperature above said boiling point to cause ejection of said drop.

Cornell et al discloses the following:

- ***regarding claims 17, 36, 53,*** each heater element includes solid material and is configured for a mass of less than 10 nanograms of the solid material of that heater element (Figure 1 : (1)) to be heated to a temperature above said boiling point to cause ejection of said drop (Column 5, Lines14 – 20)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of each heater element includes solid material and is configured for a mass of less than 10 nanograms of the solid material of that heater element to be heated to a temperature above said boiling point to cause ejection of said drop as taught by Cornell et al into the device of Silverbrook ('416) as

modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to consume less energy while using the heating element.

Claims 18, 37, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333) as applied to claim 1 above, and further in view of Ura (U.S. Pat. 3,973,106).

Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333) discloses all of the claimed limitations except for the following:

- ***regarding claims 18, 37, 54***, each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless.

Ura discloses the following:

- ***regarding claims 18, 37, 54***, each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless. (Abstract, Column 1 Lines 27 – 34)

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that

the coating is seamless as taught by Ura into the device of Silverbrook ('416) as modified by Silverbrook ('836) and Silverbrook ('333). The motivation for doing so would have been to provide better adhesion and improve the life span of the heater element.

Response to Arguments

Applicant's arguments with respect to claims 1- 54 have been considered but are moot in view of the new ground(s) of rejection. Please see the above regarding Silverbrook (U.S. Pat. 5,796,416) as modified by Silverbrook (U.S. Pat. 5,856,836) and Silverbrook (U.S. Pat. 6,669,333). The disclose an ink jet printhead comprising a plurality of nozzles, a heater corresponding to each of the nozzles heating the element to a temperature above the boiling point during use and drive circuits corresponding to each of the nozzles respectively for controlling the operation of the heater

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Uhlenhake whose telephone number is (571) 272-5916. The examiner can normally be reached on Monday - Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JSU
April 13, 2006

K. FEGGINS 04/06
PRIMARY EXAMINER